Commissioner is also hereby authorized to charge or credit Deposit Account No. 14-1431 for any additional fees which may be due under 37 C.F.R. 1.17 or for any over payment.

In response to the Action dated April 26, 2001, please amend the above-identified application, as follows:

IN THE CLAIMS:

Cancel Claims 54-66, 76, 77 and 81-89 (all the claims formerly presented - claim 90 also having been presented and canceled previously) and add the following new set of claims:

C1 Sub D1

--91. A method for producing an information carrier comprising at least two solid material interfaces at which information is or may be applied and whereat the information is stored by local modulation of at least one solid material characteristic, from which characteristic reflection of electromagnetic radiation depends at said interface, further comprising at least one intermediate layer between said two solid material interfaces, said at least one intermediate layer transmitting said radiation, said information being readable from a least one of said solid material interfaces by means of radiation of predetermined wavelength, the method comprising the step of:

depositing in said intermediate layer at least one layer at

least predominantly comprising Si_vN_w by means of a reactive vacuum coating process, comprising the step of freeing Si from a solid body into a process atmosphere with a reactive gas containing N.

Sub D1 CM Cont'd

92. A method for producing an information carrier comprising at least two solid material interfaces at which information is or may be applied and whereat the information is stored by local modulation of at least one solid material characteristic, from which characteristic reflection of electro-magnetic radiation depends at said interface, further comprising at least one intermediate layer between said two solid material interfaces, said at least one intermediate layer transmitting said radiation, said information being readable from a least one of said solid material interfaces by means of radiation of predetermined wavelength, the method comprising the step of:

depositing in said intermediate layer at least one layer at least predominantly comprising $Si_vN_wH_u$ by means of a reactive vacuum coating process in a process atmosphere, an optimum of transmission of said layer and of a refractive index of the material of said layer being achieved by adjusting the concentration of a reactive gas in the process atmosphere, which reactive gas comprises N and H.

93. The method according to claim 92, wherein Si is freed into the process atmosphere from a solid body.

94. The method according to claim 92, wherein said gas in said process atmosphere at least predominantly consists of two different gases with different ratios of at least one of C content to H content and of N content to H content and wherein said optimum is one of open-loop- and of negative-feedback-controlled by adjusting the ratio of amount of said two gases in said process atmosphere.

Sub E1 Cont'd

95. The method according to claim 91 or 92, further comprising applying between a carrier for workpieces, whereon said layer is produced, and an electrode in a vacuum atmosphere a DC-voltage and superimposing to said DC-voltage an AC-voltage.

96. The method according to claim 95, wherein said AC-voltage superimposed to said DC-voltage is a pulsating voltage.

97. The method according to claim 95, wherein said AC-voltage is generated by intermittently connecting said carrier and said electrode via a first current path and a second current path, which second current path having a considerably lower resistance than said first current path.

98. The method according to claim 91 or 92, comprising one of reactive sputtering and of ion plating for said reactive vacuum coating.

99. The method according to claim 98, wherein said sputtering is performed by magnetron sputtering.

Sub E1

100. The method according to claim 91 or 92, wherein a target of negative or positive doped silicon is one of reactively sputtered, ion plated and reactive magnetron sputtered.

C4 cont'd

101. The method according to claim 91 or 92, wherein the reactive gas is hydronitrogen and is fed to said process atmosphere.

102. The method according to claim 91 or 92, wherein the reactive gas is Ammonia.

\\N

103. The method according to claim 91 or 92, wherein the reactive gas includes Nitrogen.

Sub E1

104. The method according to claim 91 or 92, wherein said layer is produced as a layer of an intermediate layer between two solid material interfaces of an information carrier, at which interfaces information is or may be applied, and whereat the

Sub E1 Cont'd

information is stored by local modulation of at least one solid material characteristic, from which characteristic reflection of electromagnetic radiation depends at said interfaces.

Sub E1 Cont'd

105. The method according to claim 91 or 92, wherein said layer is produced at an information carrier as an intermediate layer between two solid material interfaces, which intermediate layer comprises a dielectric layer system with at least one layer, at which interfaces information is or may be applied and whereat the information is stored by local modulation of at least one solid material characteristic, from which characteristic reflection of electromagnetic radiation depends at said interfaces, wherein said layer system has an optical thickness which, at least in a first approximation, is $m \cdot \lambda_o/4$, wherein m is integer and at least unity and is uneven and wherein λ_o designated the wavelength of said radiation which is transmitted through said at least one dielectric layer of said dielectric layer system.

Sub E1

106. A method according to claim 91 or 92, wherein the method includes applying a silver layer between one of the solid material interfaces and the intermediate layer.

E1 Cont'd

107. A method for producing an information carrier comprising at least two solid material interfaces at which information is or

Sub E1

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may be applied and whereat the information is stored by local modulation of at least one solid material characteristic, from which characteristic reflection of electromagnetic radiation depends at said interface, further comprising at least one intermediate layer between said two solid material interfaces, said at least one intermediate layer transmitting said radiation, said information being readable from a least one of said solid material interfaces by means of radiation of predetermined wavelength, the method comprising the step of:

Sub E1B3 cont'd

depositing the intermediate layer to have a layer system with at least one dielectric layer and with an optical thickness which, at least in a first approximation, is $m.\lambda_o/4$, wherein m is an integer of at least unity and is uneven and wherein λ_o designates the wavelength of said radiation which is transmitted through said at least one dielectric layer and wherein, depending from said m being an integer, m may be reduced by an amount of up to 0.6 or increased by an amount of up to 0.2.

cont'd Sub E1

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108. A method according to claim 107, including depositing the intermediate layer so that the electromagnetic radiation for either applying or reading information has a wavelength within the band of $400nm \leq \lambda_g \leq 800nm$.

Sub E1

109. A method according to claim 107, wherein at least one of the

solid material interfaces is made to have a reflection of from about 20% to about 40% for a selected wavelength of said radiation.

110. A method according to claim 107, wherein said intermediate layer is deposited to have an index of refraction of greater than or equal to 2.59 and less than or equal to 4.6 and an extinction coefficient of less than or equal to 3.0.

Sub E1

Cont'd

111. A method according to claim 107, wherein the dielectric layer at least predominantly consists of at least one of silicon carbide Si_xC_y and of silicon nitride Si_vN_w.

112. A method according to claim 107, wherein the locally modulated characteristic is the thickness of a solid material body defining at least one of said solid material interfaces.

113. A method according to claim 107, wherein said reflection is valid for a first wavelength at a first of said solid material interfaces and for a second wavelength at the second solid material interface, reflection of radiation of said second wavelength at said first solid material interface being significantly lower than of radiation of said first wavelength.

114. A method according to claim 113, wherein said first wavelength being approximately 635 nm or approximately 650 nm.

115. A method according to claim 113, wherein said intermediate layer comprises at least one dielectric layer having an optical thickness which is an at least approximately uneven multiple of a quarter of one of said first and second wavelengths and is at least approximately an even multiple of a quarter of the other of said first and second wavelengths.

Sub E1 cont'd

116. A method according to claim 113, wherein said second wavelength is approximately 785 nm.

117. A method according to claim 113, wherein said reflection of said radiation at said second wavelength and at said first solid material interface is 10% at most.

118. A method according to claim 107, wherein at least one is valid:

a) the index of refraction n_1 of said intermediate layer is: $2.59 \leq n_1 \leq 4.6$,

b) the extinction coefficient k of said intermediate layer is at least one of: $k_{300\ nm} \leq 3.0$.

119. A method according to claim 107, wherein said intermediate layer comprises a spacer layer.

120. A method according to claim 119, wherein said spacer layer consists of at least one of a lacquer and of a glue.

121. A method according to claim 107, wherein said dielectric layer consists at least predominantly of at least one of the materials of the group ZrN, HfN, TiN.

Sub E1 cont'd

122. A method according to claim 121, wherein said dielectric layer at least predominantly consists of ZrN.

123. A method according to claim 107, wherein one of said solid material interfaces is formed between said intermediate layer and a plastic material or between said intermediate layer and a spacer layer or between said intermediate layer and a high reflecting cover layer.

124. A method according to claim 123, wherein at least one of the following is valid:

said plastic material is one of polycarbonate and of PMMA,

said spacer layer is at least predominantly of at least one of lacquer and glue,

said high reflecting cover layer is at least predominantly of at least one of Al, Au, Ag.

125. A method according to claim 124, wherein said high reflecting cover layer consisting at least predominantly of Al.

126. A method according to claim 107, wherein one of said solid material interfaces is formed at a lacquer surface.

Sub E1

127. A method according to claim 126, wherein said lacquer is hardenable by means of ultra-violet radiation.

cont'd

128. A method according to claim 107, wherein said intermediate layer comprises at least one semiconductor doping material.

129. A method according to claim 128, wherein said doping material is at least one of Boron and Phosphor.

130. A method according to claim 107, wherein said intermediate layer comprises C and forms at least one of said solid material interfaces with a further material which contains C as well.

131. A method according to claim 107, wherein radiation in the blue spectral range of $400 \leq \lambda_B \leq 500$ nm performs at least one of

reading and writing of said information.

132. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_xC_y and of $Si_xC_yH_z$, wherein $x \geq y$.

Sub E1

133. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_vN_w and $Si_vN_wH_u$, wherein $v \geq w$.

cont'd

134. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_xC_y and $Si_xC_yH_z$ and wherein $x \geq 1.2y$.

135. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_vN_w and of $Si_vN_wH_u$ and wherein $v \geq 1.2w$.

136. A method according to claim 107, wherein said intermediate layer comprises SixCyHz and wherein there is valid: $x \leq 0.8$, $y \geq 0.05$ and $z \geq 0.1$.

137. A method according to claim 107, wherein said intermediate layer comprises at least one of $Si_vN_wH_u$ and Si_vN_w and wherein there is valid: $v \leq 0.8$ and $w \geq 0.05$.

138. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_xC_y and $Si_xC_yH_z$ and wherein there is valid: {0.445:0.262} ≤ {x:y} ≤ {0.775:0.078}.

139. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_xC_y and $Si_xC_yH_z$ and wherein there is valid: {0.445:0.249} ≤ {x:z} ≤ {0.775:0.118}.

Sub E1 cont'd

140. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_xC_y and $Si_xC_yH_z$ and wherein there is valid: {0.078:0.249} ≤ {y:z} ≤ {0.262:0.118}.

141. A method according to claim 107, wherein said intermediate layer at least predominantly consists of $Si_xC_yH_z$ and wherein there is valid: x:y:z=0.704 (±10%):0.087 (±10%):0.131 (±10%), wherein ±10% indicates the statistic dispersion of multiple measurements of the values.

142. A method according to claim 107, wherein said intermediate layer at least predominantly consists of SixCyHz and wherein there is valid: x:y:z=0.494 (±10%):0.238 (±10%):0.226 (±10%), wherein ±10% indicates the statistic dispersion of multiple measurements of said values.

143. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_vN_w and $Si_vN_wH_u$ and wherein there is valid: $\{0.527:0.401\} \leq \{v:w\} \leq \{0.858:0.099\}$.

144. A method according to claim 107, wherein said intermediate layer comprises at least one of SivNw and $Si_vN_wH_u$ and wherein there is valid: $\{0.527:0.044\} \leq \{v:u\} \leq \{0.858:0.009\}$.

Sub E1 cont'd

145. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_vN_w and $Si_vN_wH_u$ and wherein there is valid: $\{0.099:0.044\} \leq \{v:u\} \leq \{0.401:0.009\}$.

146. A method according to claim 107, wherein said intermediate layer comprises at least one of Si_vN_w and $Si_vN_wH_u$ and wherein there is valid: v:w=0.78 (±10%):0.11 (±10%), wherein ±10% indicates statistic dispersion of multiple measurements.

147. A method according to claim 107, wherein said intermediate layer comprises at least one of SivNw and $Si_vN_wH_u$ and wherein there is valid: v:w=0.586 (±10%):0.364 (±10%), wherein ±10% indicates statistic dispersion of multiple measurements.

148. A method according to claim 107, wherein at least three of said solid material interfaces are provided on one side of a

Sub E1 Cont'd

carrier substrate.

149. A method according to claim 107, wherein an information storage capacity per side of the carrier substrate is at least 11 GByte at a diameter of a circular carrier of 120 mm.--